

Remarks

Claims 2, 3, and 5-8 are pending in the subject application. By this Amendment, claims 2 and 5 have been amended. No new matter has been introduced by these amendments. Upon entry of these amendments, claims 2, 3, and 5-8 will be before the Examiner. Favorable consideration of the pending claims is respectfully requested.

Claim 2 is rejected under 35 U.S.C. § 112, second paragraph, as being indefinite. Applicant respectfully requests reconsideration. Claim 2 has been amended to replace “to display” with “to detect.” Although not rejected under 35 U.S.C. § 112, second paragraph, claim 5 has been analogously amended. Support for these amendments can be found, at least, at paragraph [0023]. No new matter has been introduced. Accordingly, Applicant respectfully requests withdrawal of this rejection.

Claims 2, 3 and 5-8 are rejected under 35 U.S.C. §103(a) as being unpatentable over Kondo *et al.* (U.S. Pat. App. No. 2002/0061722) in view of Kilham (U.S. Pat. No. 5,191,388). Applicant respectfully requests reconsideration. Claims 2 and 5 have been amended to recite “particle density of two dimensions of the slurry solution across a cross-section of the by-pass.” Support can be found, at least, at Fig. 3A, which shows a two dimensional cross-section of the slurry solution detected by the sensor.

Applicant maintains that Kondo fails to teach or suggest providing diluent solution supply unit directly to the by-pass. However, for expediting prosecution of the subject application to completion, the focus of the following remarks relates to the claimed photo image sensor.

In particular, Kondo *et al.* and Kilham, alone or in combination, fail to teach or suggest a photo image sensor detecting a cross-sectional image of slurry flowing in the by-pass, detecting sizes of particles included in the captured image and a particle density of two dimensions of the slurry across a cross-section of the by-pass, and then using a slurry measuring unit to analyze the image captured by the photo image sensor.

Specifically, Kondo teaches a particle detector that is a light-extinction type and adapted for irradiating a predetermined quantity of light on a flow cell fitted in the bypass conduit so as to detect an attenuation of the light transmitted through the polishing solution flowing through the flow cell, which is not an image. Rather, the result is a voltage fluctuation seen perpendicular to the flow direction. See Kondo Fig. 2, paragraphs [0011], [0015], [0018], and Fig. 3.

Furthermore, the particle detector 7 of Kondo *et al.* includes a light detecting device such as a photodiode for detecting an intensity of the light emitted from the light source 72 and transmitted through the flow cell 74 (*see* Kondo *et al.* at paragraph [0048]). Therefore, the particle detector 7 of Kondo *et al.* does not analyze the cross-sectional image captured by the photo image sensor to measure the sizes of particles included in the slurry and the particle density of two dimensions of the slurry across the cross-section of the by-pass.

Kilham does not cure this defect. Rather, instead of detecting a particle density of two-dimensions, Kilham's optical fiber 22 detects a thin layer 84 image, which is a three dimensional image, of the slurry (*see* Fig. 3 and col. 7, lines 1-48 of Kilham). Specifically, Kilham states, at col. 7, lines 1-7: "In accordance with an important and essential aspect of the present invention, the focal length of optical fibers 22 which are used to view slurry 16 is very small such that only a thin layer 84 of slurry is focused for viewing, as shown best in FIG. 3. Such layer 84 preferably has a thickness T equal to the largest size of particulate matter 17 in slurry 16." (Emphasis Added). Therefore, the particle detector 22 of Kilham does not detect a particle density of two dimensions of the slurry solution across a cross-section of the by-pass.

Accordingly, Applicant respectfully requests withdrawal of the §103(a) rejection of claims 2, 3, and 5-8.

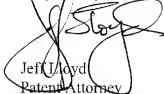
Claims 2, 3, and 5-8 are rejected under 35 U.S.C. §103(a) as being unpatentable over Kondo *et al.* (U.S. Pat. App. No. 2002/0061722) in view of Kilham (U.S. Pat. No. 5,191,388) and Grant *et al.* (U.S. Pat. App. No. 2003/0174306). Applicant respectfully requests reconsideration. As discussed above, Kondo *et al.* and Kilham, alone or in combination, fail to teach or suggest detecting a particle density of two dimensions of the slurry solution across a cross-section of the by-pass as specified in amended claims 2 and 5. Grant *et al.* does not cure these defects. Accordingly, Applicant respectfully requests withdrawal of the §103(a) rejection of claims 2, 3, and 5-8.

In view of the foregoing remarks and amendments to the claims, Applicant believes that the currently pending claims are in condition for allowance, and such action is respectfully requested.

The Commissioner is hereby authorized to charge any fees under 37 C.F.R. §§ 1.16 or 1.17 as required by this paper to Deposit Account 19-0065.

Applicant invites the Examiner to call the undersigned if clarification is needed on any of this response, or if the Examiner believes a telephonic interview would expedite the prosecution of the subject application to completion.

Respectfully submitted,



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